Introduction to tSQLt Framework

Roman Pijáček · Joyful Craftsmen

MS Business Intelligence Developer

Why should we write Unit Tests?

1 The cost of fixing a defect detected during Unit Testing is much lower

2 Immediate feedback to developers (CI pipeline failed after commit?)

3 Can define logic/behavior when used with TDD

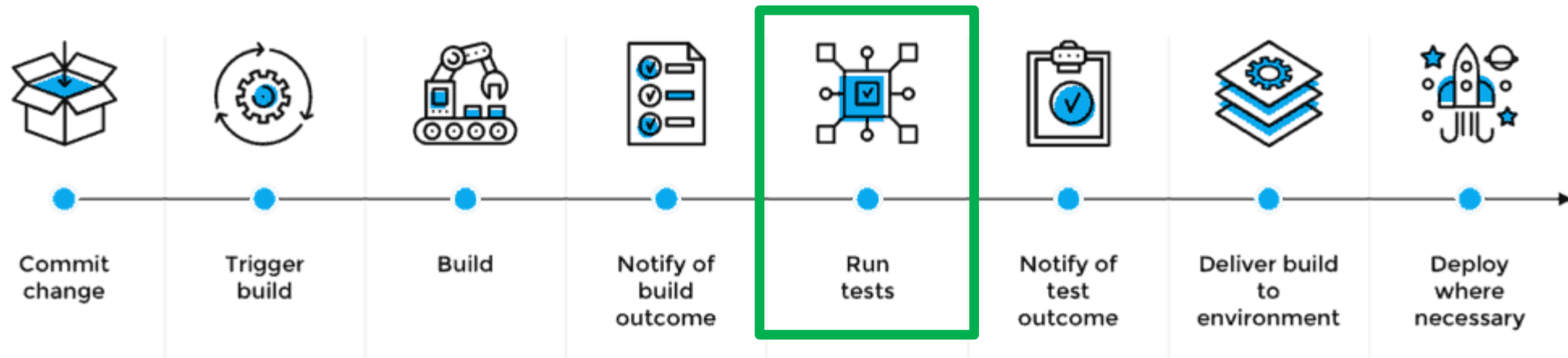**4** Much easier to maintain/refactor our code

What is the tSQLt framework?

- Open Source Database Unit Testing framework for MS SQL Server

- Compatible with SQL Server 2005 SP2 onwards

- tSQLt frameworks written in T-SQL and C#

- Test Classes, Unit Tests, Asserts written in T-SQL

- Tests categorized into TestClasses, executed within transactions

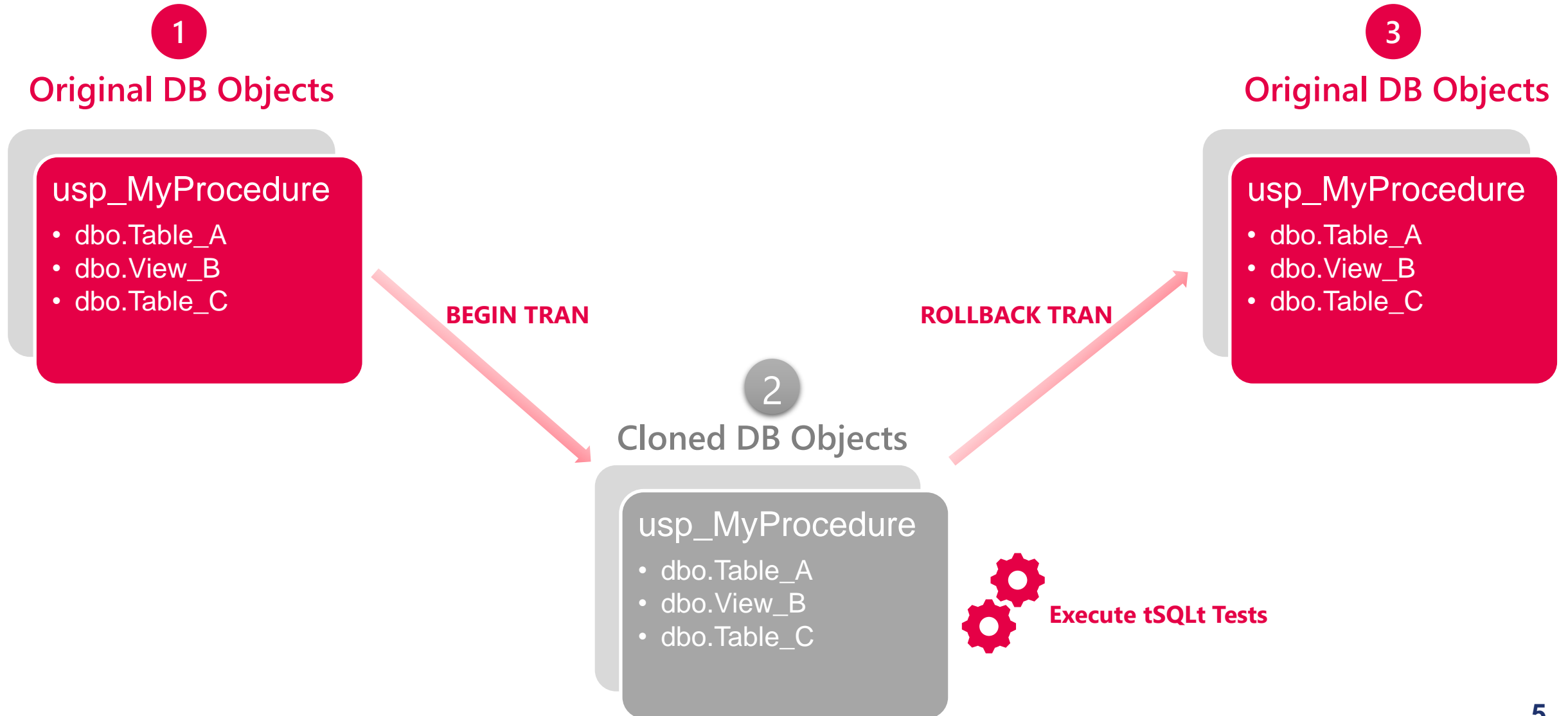- **Ideal World**: Every developer covers code with tSQLt tests
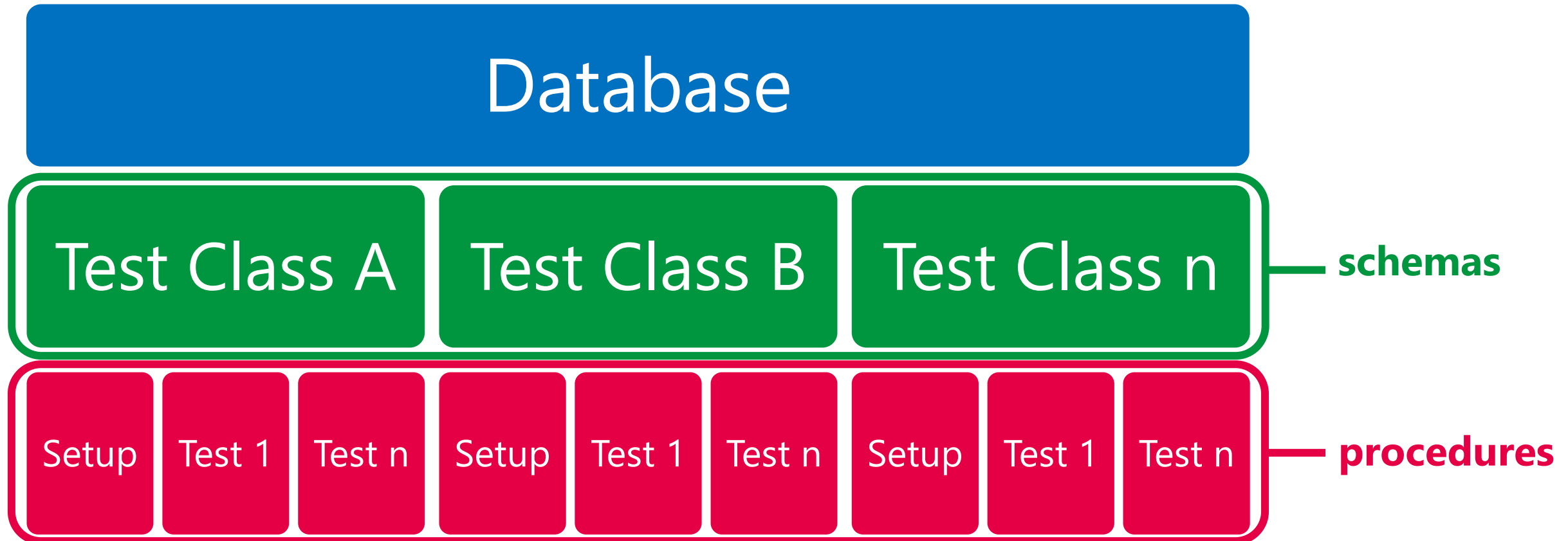
Where and When to use tSQLt?

✅ CI/CD Pipeline, Personal/Local DB, DEV Environment

❌ Upper environments: (PROD/UAT/etc.)

| Commit change | Trigger build | Build | Notify of build outcome | **Run tests** | Notify of test outcome | Deliver build to environment | Deploy where necessary |

How does tSQLt work? Example of Test Execution

1

Original DB Objects

usp_MyProcedure
- dbo.Table_A
- dbo.View_B
- dbo.Table_C

BEGIN TRAN

2

Cloned DB Objects

usp_MyProcedure
- dbo.Table_A
- dbo.View_B
- dbo.Table_C

Execute tSQLt Tests

ROLLBACK TRAN

3

Original DB Objects

usp_MyProcedure
- dbo.Table_A
- dbo.View_B
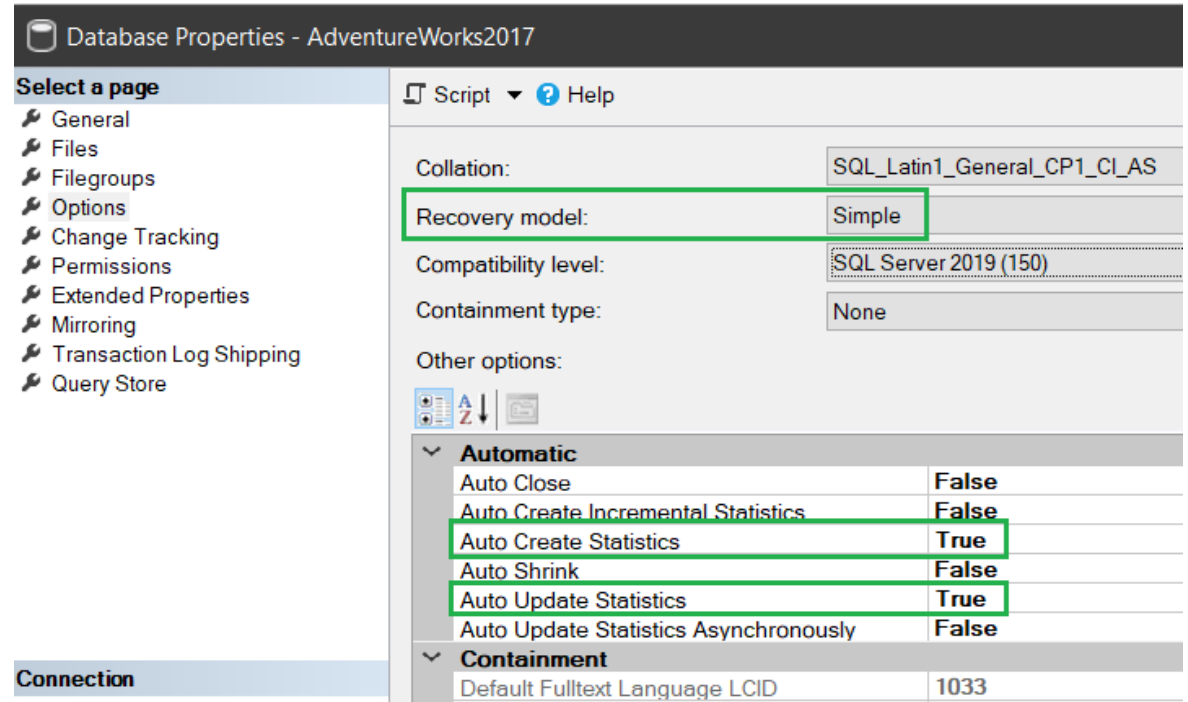- dbo.Table_C

Structure of tSQLt Tests

tSQLt Examples

tSQLt is useful for DBAs too!

❌ SSDT project settings might be accidentally changed by DEV

✅ tSQLt also allows you to check your DB settings & configuration immediately after deployment

tSQLt DBA Checks

Available tools based on tSQLt – SQL Test, SQL Cop

- SQL Test by **RedGate**:
  - https://www.red-gate.com/products/sql-development/sql-test/

- **SQLCop** repository:
  - https://github.com/red-gate/SQLCop

Sources

✅ tSQLt.org

✅ SQL Unit Testing with the tSQLt Framework for beginners

✅ Unit Testing in SQL Server with tSQLt (RedGate video)

✅ Azure SQL unit testing with tSQLt using Azure DevOps

The source code and other materials available in my GitHub repository:

github.com/RomanPijacek/tSQLt

Thank you ☺

pijacek.roman[at]gmail.com

linkedin.com/in/pijacek

@Roman_Pijacek

github.com/RomanPijacek